

**80/234/RVC****RESULT OF VOTING ON CDV**

Project number: 80/60936-1	Reference number of the CD 80/209/CDV
IEC/TC or SC 80	Date of circulation 1999-06-11
Title of the TC or SC concerned Maritime navigation and radiocommunication equipment and systems	

Title of the committee draft: IEC 60936-1: Maritime navigation and radiocommunication equipment and systems - Radar - Part 1: Shipborne radar - Performance requirements - Methods of testing and required test results
The above-mentioned document was circulated to National Committees with a request that voting take place for approval for circulation as an FDIS (or publication as a Technical Report)
Voting results see printout attached
Comments received – see annex ¹
In the case that the approval criteria for acceptance have been met, a <input checked="" type="checkbox"/> The enquiry draft for vote (CDV) will be registered as an FDIS by (date) 1999-06
DECISION OF THE CHAIRMAN (in cooperation with the secretariat), in the case that the approval criteria for acceptance have not been met or in the case of a draft Technical Report b <input type="checkbox"/> The enquiry draft for vote (CDV) will be published as a Technical Report by (date)
c <input type="checkbox"/> A revised committee draft will be circulated as an enquiry draft for vote (CDV) by (date)
d <input type="checkbox"/> A revised committee draft will be circulated for comment by (date)
e <input type="checkbox"/> The committee draft and comments will be discussed at the next meeting (date)
NOTE — In the case of a proposal <i>b</i> , <i>c</i> or <i>d</i> made by the chairman, P-members objecting to such a proposal shall inform the Central Office with copy to the secretary in writing within 2 months of the circulation of this compilation (see 2.6.5 of Part 1 of the ISO/IEC Directives).

Name or signature of the Secretary P F C GRIFFITHS (1999-06-04)	Name or signature of the Chairman A P NORRIS (1999-06-04)
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¹ to be collated on Form 8C and annexed.

Result of Voting on CDV - Document 80/209/CDV

Project: IEC 60936-1 Ed.1

IEC 60936-1: Maritime navigation and radiocommunication equipment and systems - Radar - Part 1: Shipborne radar - Performance requirements - Methods of testing and required test results

Circulation Date: 1998-11-06

Closing Date: 1999-04-15

Country	Status	Sent	Received	Vote	Comments
Belgium	P	1999-04-15	1999-04-15	Y	-
China	P	1999-04-12	1999-04-12	Y	-
Denmark	P	1999-04-15	1999-04-15	A	-
France	P	1999-04-14	1999-04-14	Y	-
Germany	P	1999-03-23	1999-03-23	Y	Y
Greece	O	1999-04-07	1999-04-08	Y	-
Ireland	O	1999-04-15	1999-04-15	Y	-
Italy	P	1999-04-15	1999-04-15	Y	-
Japan	P	1999-04-15	1990-04-15	Y	Y
Netherlands	P	1999-04-13	1999-04-13	Y	-
Norway	P	1999-04-06	1999-04-06	Y	Y
Portugal	-	1999-04-09	1999-04-09	A	-
Romania	P	1999-04-29	1999-04-29	Y	-
Russian Fed.	P	1999-01-18	1999-01-28	Y	Y
Spain	O	1999-04-15	1999-04-15	Y	-
Sweden	P	1999-04-15	1999-04-15	Y	-
U.S.A.	P	1999-03-30	1999-03-30	Y	-
United Kingdom	P	1999-04-09	1999-04-09	Y	Y

		Approval Criteria	Result
P-members voting: 12			
P-members in favour: 12 = 100 %		>= 67%	APPROVED
Total votes cast: 15	Total against: 0 = 0 %	<= 25%	APPROVED
Final Decision:			APPROVED

NOTES

1 Vote: Does the National Committee agree to the circulation of the draft as a FDIS:
Y = In favour; N = Against; A = Abstention.

2 Only votes received before the closing date are counted in determining the decision.
Late Votes:Romania; (1).

3 Abstentions are not taken into account when totalizing the votes.

4 P-members not voting: Egypt; Finland; (2).

Annex

Date:	Document:
1999-06-03	80/209/CDV

National Committee	Clause/Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	Contents	3.20	T	IMO resolution	Delete “warnings” Insert “alarms”	The IMO text is “warnings”. Add “alarms” after “warnings.”
UK	Contents	Annex E	T	To give guidance to test laboratories on “good practice”	Add a new “informative” Annex E	Agreed.
UK	2	60872-3	E	Correct date	Delete “199X” Insert “1999”	Agreed.
UK	2		E	Omission	Insert / add IEC 61996:[1999] Shipborne voyage data recorder (VDR)	Agreed.
JAPAN	3.3.2		Editorial		Line 3 – put “buoy” in italics	Agreed.
DE	3.5.6.1		Technical	Use of antenna offset changes results of range and bearing measurements and therefore should be brought to the attention of the user to avoid misinterpretation.	Add: “If used, a clear indication shall be permanently displayed on the screen.”	Agreed.
JAPAN	3.6.1.1		Editorial		Insert a line space from 3.6.1	Agreed.
JAPAN	3.6.1.3		Editorial		Replace “are” with “is”	Agreed.
UK	3.6.2	Line 2	E	Omission	Insert ‘.’ (Full stop)	Agreed.
JAPAN	3.6.2	Line 3	Editorial		Change “miles” to “mile”	Agreed.
Norway	3.6.2		Technical	a) The sentence “ Temporary overlaying is permitted within the data fields” is in conflict with, and overrides, the previous IMO sentence in the same clause, which clearly states that “ <i>This readout shall not display any other data</i> ”. We presume the purpose of the IMO	Delete the sentence “Temporary overlaying is permitted within the data fields”.	The Working Group noted that the text in the high-speed craft (HSC) standard – 60936-2 – “The readout shall not display other data” had been originated by IEC, and subsequently included in the IMO Resolution for radar. The WG concluded that this justified the additional IEC words in this standard. Those additional words have been modified to be

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
				<p>requirement is to avoid such overlay, whether it is temporary or not, when nothing else has been said.</p> <p>b) Harmonization. The text in the IMO P.S. for shipborne radar has been inserted by IEC in the radar test standard for HSC.</p>		"Temporary overlaying of the data fields is permitted."
JAPAN	3.6.8		Technical	Duplication of clause 3.5.6.1	Remove whole clause	Agreed.
DE	3.7		Editorial	To comply with 4.7 and IEC 60936-2	Replace "Heading indication" by "Heading indicator"	4.7 is using "indication" which is as IMO. No change.
JAPAN	3.7.1		Editorial	Also 3.8.2	IMO does not use words for degree, but a symbol - °.	Agreed.
Norway	3.8.6		Technical	Similar to the comments made on 3.6.2. It is not within the authority of IEC to override IMO requirements.	Delete the sentence referred to.	See response to 3.6.2.
JAPAN	3.9.2	Line 2	Editorial		Replace " <i>miles</i> " by " <i>mile</i> "	Agreed.
JAPAN	3.12.1	Line 3	Editorial		Replace " <i>2 revolutions per minute (12°/s)</i> " by " <i>2 rpm. (12°/s)</i> "	Agreed.
UK	3.12.2.1		E	Better English	Delete "remaining" Insert "becoming"	Agreed.
UK	After 3.12.2.2 new 3.12.3		T	For operational clarity to the user	Insert 3.12.3 Head-up (unstabilised) and North-up (stabilised) display modes shall be provided. Additionally a course-up (stabilised) display mode may be provided, in which case the bearing scale shall be true and referenced to the course when the mode is selected.	Agreed.
UK	After new		T	For operational clarity to the user	Insert: 3.12.3.1 There shall be a positive	Agreed.

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	3.12.3				indication of the display mode in use	
UK	3.12.3-old		E	Consequential on above	Delete “3.12.3” Insert “3.12.4”	Agreed.
UK	3.15.2	para 4	E	Editorial	Delete: “navigationa” Insert “navigational”	Agreed.
JAPAN	3.17.5	Last line	Editorial		Replace to read “ <i>with the requirements of A.824 (19)</i> and further defined in IEC 61023.”	Agreed.
UK	3.17.6		E	Editorial	Delete “i.e.” Insert “ : ”	Agreed.
UK	3.17.6		E	Better English and for consistency	Delete “head” Insert “ahead”	Agreed.
UK	3.20		T	IMO resolution	Delete “warnings” Insert “alarms”	Agreed to insert “alarms” after “warnings”.
JAPAN	3.20.1.6		Editorial	Also 3.22.1	Add a hyphen between position and fixing	Agreed.
DE	3.20.4		Editorial Technical	Previous IEC 61162-1:1995 does not contain the ALR/ACK DE sentences. Omission	Replace in footnote 1:(IEC 61162) by (IEC 61162-1 edition 2) Add “if not internal” after “IEC 61162-1”	Agreed. This has been realised by making the normative reference “1999”. The Working Group noted that the footnote related to “Output – Danger of Collision” referred to a system containing at least an ATA, not a basic radar. The note has been deleted.
UK	3.20.5		E	Clarification	Delete “Alarms” Insert “Failure Alarms”	Agreed.
UK	3.20.5		E	Clarification	Delete “a single alarm” Insert “each alarm in order”	Agreed.
UK	3.21.4		E	Better English	Delete “ <i>would</i> ” Insert “will” (upright not italics)	Agreed.
DE	3.22.1		Technical	Until 61162-2 interfaces are implemented for gyro-compasses on a broad basis, stepper or synchro interfaces are the common alternative and should be	Add: “additional other suitable interfaces are permitted.”	Agreed.

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				permitted.		
UK	3.22.7 new		T	For consistency with the AIS symbology already specified	Insert: An IEC 61162-3 interface for input of data for AIS symbology display may be provided.	Agreed.
UK	3.23		T	For safety	Add "Navigation information affected by azimuth stabilization shall be suppressed after approximately 1 min of the in-use stabilisation sensor becoming inoperative."	Agreed.
JAPAN	3.24.3	Line 2	Editorial		Delete the full stop between "mm" and "as"	Agreed.
JAPAN	3.24.4		Editorial		Line space between 3.24.3 and 3.24.4	Agreed.
Norway	3.26.1		Technical	The first two points in the last paragraph have already been stated in the previous paragraph. The last point is implicit.	<p>Delete the last paragraph, reading: "These functions may be executed by:</p> <ul style="list-style-type: none"> - dedicated controls - primary access in an associated menu - alternative solutions which meet the functional requirements". <p>Alternatively</p> <ul style="list-style-type: none"> a) Delete the last part of the first sentence of the clause covering the same matters b) Delete both, the last paragraph and alternative a), if they do not add any clarification to the IMO requirement. 	<p>Agreed.</p> <p>This proposal has been accepted.</p>

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DE	3.26.1		Technical Technical	With current monitors, there is normally no need to change contrast during operation and/or contrast is set together with brilliance with satisfying results. To comply with IEC 60936-2	Add: "(where applicable)" after "- contrast" Add: " 1)" after "Contrast", "Acknowledge alarm", "Vector true/relative" and "Pulse length"	Agreed. Agreed.
Norway	3.26.3		Technical	The expression "tactile means" used in the last sentence is not commonly used in standards (We are aware that it also appears in the HSC standard, but it is not clear to us what it implies)	The expression "tactile means" requires a definition related to the radar. Alternatively, an expression related to radar controls should be used (touch screen control ??). In this case, the type of control may be applicable for other functions as well ??	No specific proposal has been made. The expression exists in the original IEC 936. The Working Group agreed to amend as follows "tactile (by feel or touch) means"
Norway	3.26.6		Technical/ Editorial	Reference comments on 3.6.2 and 3.8.6. Also the HSC standard.	Delete the last sentence "Temporary overlaying.....".	See response to 3.6.2.
JAPAN	4.1	Line 1	Technical	Test procedures should be determined by the test authorities	Remove "before tests"	Agreed.
DE	4.1		Technical	Clarification of contents of performance checks	Add behind clause "performance check". "(see Annex E Guidelines for performance checks), and Add "Annex E – Guidelines for performance checks" to the standard.	Agreed.
UK	4.1	para 1	E	Clarity	Insert (between out..before) "on the sample equipment under test (EUT)"	Agreed.
UK	4.1	para 1	E	Consequential	Delete ""Equipment under test (EUT)" Insert "EUT"	Agreed.
UK	4.1	new para 3	T	To give guidance to test laboratories	"Where test requirements are given in a non-quantative manner the results shall	Agreed.

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					be the aggregate obtained over a number of observations.”	
UK	4.1	para 4	T	For test clarity	Insert (at end after 60945) “This shall include the operation of the Gain, Tune, Clutter, EBL, VRM and plotting facilities to confirm normal operation.”	Agreed.
UK	4.1	para 4	T	To give guidance to test laboratories	Insert / add (at end) “See informative Annex E	Agreed.
UK	4.1	para 5	T	To give further guidance to test laboratories	Insert after IEC 60945 “with the addition of the display test specified in 4.5”	Agreed.
UK	4.1	para 5	T	To give guidance to test laboratories	Insert / add (at end) “See informative Annex E	Agreed.
UK	4.1	para 7	T	To clarify the requirements of the test	Insert (between for..50%) “at least”	Agreed.
UK	4.1	para 7	T	To clarify the requirements of the test	Add end “with any afterglow or trails facility switched off.”	Agreed.
UK	4.1	para 8	T	To clarify the requirements of the test and ensure laboratory harmonisation.	Insert / add (at end) “and in the True Motion display mode described in clause 3.17.1. A manual or simulated log forward speed of 10kts shall be applied unless otherwise specified in the test clause.”	Agreed.
UK	4.1.1		T	To ensure that tests are carried out over water.	Insert / add after authority “that can present an over-water test range containing the targets and features needed for the specified tests.”	Agreed.
JAPAN	4.1.2	Line 1	Editorial		Separate 15 and “m” by a space	Agreed.
UK	4.1.4		T	To allow some flexibility	Insert / add (at end) “Measurements may be taken in other sea states but in case of	Agreed.

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					conflict, measurements taken at sea states 0 or 1 shall take precedence.	
UK	4.1.5	4.1.5	T	Consequent on the following proposal.	Insert "4.1.5.1 before 'Where...'	Agreed.
UK	4.1.5.2 new		T	To provide a base line for ITU RR.	"The operating frequency and peak power output of the radar system under test, at normal power supply and temperature shall be measured with suitable microwave frequency and power meters and recorded in a test report.	Not agreed. The Working Group was of the view that IEC should not add additional requirements that were not yet mandatory in the Radio Regulations.
DE	4.2		Technical	Add 4.2.2 Technical information – to comply with IEC 60936-2	4.2.2.1 (3.2) Adequate information shall be provided to enable the equipment to be properly set-up, maintained and operated during type testing. 4.2.2.2 (3.2.1) The installation section of the manufacturer's manual shall be examined to ensure that it contains adequate information to comply with this standard. 4.2.2.3 (3.2.2) By examination of the certification issued to the manufacturer.	Agreed.
UK	4.2.1.2		T	For clarification and subsequent record retrieval.	Insert / add (at end) "The actual distance requested and tested shall be recorded in the test report.	Agreed.
UK	4.3.1		T	For clarity	Add (at title end) " – Coastlines and Surface Objects"	Agreed.
UK	4.3.1	para 1	T	For technical clarity.	Insert (between used..for) "as a control"	Agreed.
UK	4.3.1	para 1	T	To give setting-up guidance to test laboratories.	Add (at end) "The radars tune, gain and clutter controls shall be set such that the reference target paints between 8 out of	Agreed. The proposed English text has been amended.

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					10 and 10 out of 10 radar scans.”	
UK	4.3.1	para 2	T	Consequential on expanding the tests in 4.3 into 2.	Delete “As” Insert “Then as”	Agreed.
UK	4.3.1	para 2	T	Consequential	Insert (at end) “to confirm the detection and display of objects described in 3.3	Agreed.
UK	4.3.2		T	To expand the test into two.	Delete “4.3.2” Insert “4.3.1.1”	Agreed.
UK	4.3.2 new		T	To expand the test into two and to provide an input to a subsequent test.	Insert / add “4.3.2 Method of Measurement Excess Performance (For test method in 4.10.3). The test target used in 4.3.1 above shall be used for this test. The radars tune, gain and clutter controls shall not be adjusted from that set above. A variable attenuator shall be inserted in the antenna feed. The attenuation applied shall be gradually increased until the test target paints 5 out of 10 radar scans.	Agreed. However, the Working Group added the following: “This method of measurement is only required if the method of measurement according to 4.10.2 is used for pitch and roll performance.”
UK	4.3.2.1 new		T	To expand the test into two and to provide an input to a subsequent test.	Insert / add 4.3.2.1 Results required The excess performance in dB measured shall be recorded in the test report for later use in the roll and pitch performance test of 4.10.3.	Agreed.
UK	4.4.1	para 2	E	To give clarity to the test requirement	Delete “the target” Insert “a test target”.	Agreed.
UK	4.4.1	para 2	E	Editorial	Insert (between sea..control) “and gain”.	Agreed.
UK	4.4.2		T	Clarity	Add (at end) “The distance measured shall be recorded in the test report.	Agreed.

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DE	4.5.4		Editorial		Replace “3.5.11” by “3.5.10”	Agreed.
UK	4.6.2		E	For clarity	Add (at end) “of clause 3.6”	Agreed.
UK	4.6.3		E	For clarity	Delete “test” Insert “known”.	Agreed.
UK	4.6.3		T	To expand and clarify the test equipment.	Add (at end) “At least one known target shall be checked on each range scale up to 24nm.	Agreed.
UK	4.6.5		T	For clarity	Add “ – Fast response measurement “	Agreed.
UK	4.6.5		T	Better description of established and accepted test procedure.	Delete “the accuracy of the range rings and” Insert “the time to take an accurate measurement using the”	Agreed.
UK	4.6.5		E	Clarity	Delete “test” Insert “known.	Agreed.
Russia	4.6.6		Technical	The requirements of 4.6.6 “ A range measurement shall be capable of being taken within 5 s of switching on VRM and shall be within $\pm 0,1$ nautical miles or $\pm 2\%$ of range scale in use, whichever is greater” are in conflict with requirements of 3.6.3.		Not agreed. The Working Group have stated that 4.6.6 is a speed of response test to meet the requirement of 5 s, not a final accuracy test, which is given in 4.6.3. However the WG agreed to add the following at 4.6.3 (3.6.3) “Method of measurement – Accuracy” – for clarity.
UK	4.8.1	para 1	T	Consequential on the change to Standard operating mode in 4.	Insert (after mode) “with zero own ship speed”	Agreed.
UK	4.8.1	para 4a	T	To give clarity to test requirements	Insert (after at) “a series of”	Agreed.
JAPAN	4.8.1	a)	Editorial		Change “bearings” to “bearing”	No. See UK above.
UK	4.8.1	para 4b	T	To give clarity to test requirements	Insert (after of) “a series of”	Agreed.
UK	4.8.1	para 4b	T	To give clarity to test requirements	Insert (after known) “(surveyed)”	Agreed.

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UK	4.8.1	para 4c	T	To establish a robust test	Insert (after pedestal) "in 10° steps covering 360°,""	Agreed.
UK	4.8.4		E	Editorial (missing)	Insert (after 4.8.4 "(3.8.12)	Agreed.
UK	4.8.4.1			See below	Delete "and" Insert " , "	Agreed.
UK	4.8.4.1			See below	Insert (after operation) "and accuracy"	Agreed.
UK	4.8.4.1		T	Better test requirement definition.	Insert / add (at end) " and measurement".	Agreed. As a consequence of these proposals for 4.8.4.1, the WG agreed to add to 3.8.12 – "...two independent lines or sets of parallel..."
UK	4.9.1.1		T	To make sure that the correct test target size is used.	Insert (after section) "(10m ² at 3.5m height)"	Agreed.
UK	4.9.1.3		T	For test house requirement clarity	Insert (at end) "The measured separation of the two targets shall be recorded in the test report."	Agreed.
UK	4.9.2		T	Consequential on the addition of 4.29 (ie 4.30 from IEC 60936-2 – HSC radar)	Delete sentence under 4.9.2	Agreed.
UK	4.9.2.1	para 1	T	To make sure that the correct test target size is used.	Insert (after section) "(10m ² at 3.5m height)"	Agreed.
UK	4.9.2.1	para 2	T	For clarity of test.	Insert / add (at end) "The linear distance between the two targets shall be measured and the angle calculated with respect to the known range of the test targets."	Agreed.
UK	4.9.2.2		T	For test clarity	Insert / add (at end) "The calculated angular separation of the two targets shall be recorded in the test report."	Agreed.
JAPAN	4.9.3.1	1. and 2.	Editorial		Change 1. and 2. to .1 and .2 - In 1.	The editing process has changed the sub-clauses to a), b) etc.

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					Change "The antenna horizontal radiation pattern..." to "A horizontal radiation pattern....."	The definition has been editorially amended.
DE	4.9.3.3	Table 1	Editorial	Within $\pm 10^\circ$ would include main beam, this may be misleading.	Replace "within $\pm 10^\circ$ " by " at $\pm 10^\circ$ "	Not agreed. The Working Group stated that a "mask" is intended. No change.
UK	4.9.3.3	para 1	T	Test clarity	Insert / add (at end) "The measured horizontal pattern (graph) of the antenna shall be recorded in the test report."	Agreed.
UK	4.10	para 1	T	Consequential on including new 4.3.2.	Insert (between of..range) "excess""	Agreed.
UK	4.10	para 1	E	Editorial.	Delete "4.3" Insert "4.3.2"	Agreed.
UK	4.10	para 2	T	Better English and for clarity.	Delete "is still detected" Insert "still presents a clear indication."	Agreed.
UK	4.10	para 3	E	Singular test.	Delete "s" of requirements and "are" Insert "is".	Agreed.
JAPAN	4.10.3	Paragraph 2	Editorial		Line 1 – change "in only" to "only in"	Agreed.
UK	4.10.3	para 2	T	Consequential on new 4.3.2.	Delete "4.3.1" Insert "4.3.2".	Agreed.
UK	4.11.1/ 4.11.2.1		E	Editorial	Insert (after knots) "(51.5 m/s)"	Agreed.
JAPAN	4.11.2.2		Editorial		Change "...shall not be less than 20 rpm for all radar range...." to "shall not be less than 20 r.p.m on all range ..." ADD – "For the antenna running on AC power supply, the test shall be made at a nominal frequency (60 Hz) and nominal voltage."	Agreed. This has been added in the method of measurement.
UK	4.11.2.2		T	Conformity with IEC 60936-2	Insert (at end) (from 4.11.2.3 of IEC 60936-2) "If a sector blanking facility is	Agreed.

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					provided, blank sector or sectors shall be checked to confirm that they are clearly indicated on the display."	
UK	4.12.1	para 1	T	To state mode for test	Insert (at beginning) "The display presentation mode of the radar shall be set to North-up and to course-up if provided,"	Agreed.
UK	4.12.1	New final paras	T	To check all modes for performance	<p>"The display presentation mode of the radar shall be changed to Head-up and the above tests repeated.</p> <p>Finally the compass simulator shall be switched off or the data connection removed and the display presentation mode of the radar and alarm status observed."</p>	Agreed.
UK	4.12.1.2		T	Consequential on new 3.12.4	Insert / add (after 3.12.3) "",3.12.4"	Agreed.
JAPAN	4.14.3		Editorial		Change " 3,5 m height " to "3,5 m high"	Not agreed. No change has been made.
DE	4.14.3		Technical	Trials showed difficulties to have a 100 m ² test target initially obscured under normal clutter conditions.	Change: Test target size to 40 m ² .	The Working Group agreed to change to 50 m ² .
DE	4.14.4		Editorial		Replace "the measurements at 4.14.4.1 and 4.14.4.2" by "the measurements at 4.14.4.1 to 4.14.4.3"	Agreed.
JAPAN	4.14.4		Editorial		Change " 1. – 2. – 3. and 4." to ".1 -.2 - .3 and .4". After 4.14.4.2 delete "at"	<p>Edited to be a), b) etc.</p> <p>The 2nd "at" has been edited.</p>
DE	4.14.7		Editorial		Replace 4.1.5 by 4.1	Agreed.
UK	4.14.7			See below	Delete "4.1.5"	Agreed.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	4.14.7		T	For test result clarity.	Insert / add "4.1. Record in the test report whether live radar clutter or simulated clutter was used."	Not agreed. In consequence the Working Group agreed to remove the old 4.14.6, as no agreement has been reached on the characteristics of a clutter simulator.
JAPAN	4.14.7		Editorial		Change "4.1.5" to "4.1"	Agreed.
UK	4.15.1		T	To separate the two requirements of 3.1.5	Insert (at end) "-Availability"	Agreed.
UK	4.15.1	new first para	T	A fuller description of the test requirement	<p>Insert / add "The radar system shall be pre-conditioned by being disconnected from the power source for at least 1 hour. It shall then be re-connected to a power source and switched on. A stop watch shall be started. As soon as available the radar shall be set to transmit mode. When the full display of a radar picture is achieved the stop watch shall be read.</p> <p>The radar shall then be set to the standby mode for at least 2 minutes. The radar shall then be set to transmit and the stop watch started. When full presentation of the radar picture has resumed, the stop watch shall be stopped and read.</p>	Agreed.
UK	4.15.1.1 new		T	A fuller description of the test requirement	<p>"Results required</p> <p>The equipment shall be fully operational from cold within 4 minutes and shall be brought back to an operational condition from standby within 15 secs.</p>	Agreed.
UK	4.15.2 new		T	A fuller description of the test requirement	Method of measurement – Controls	This was not agreed.
UK	4.15.1	para 1	E	Editorial	Delete "3.15" Insert "3.15.2"	Agreed.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	4.15.2		T	Consequential to insertion of new 4.15.2.	Delete "4.15.2" Insert "4.15.2.1"	Agreed.
UK	4.17.1			See below	Delete "by inspection" Insert "The requirements of 3.17.1 to 3.17.3 shall be checked by inspection during operation of the equipment."	Agreed.
UK	4.17.2			See below	Delete ""(3.17.2) By inspection" Insert "(3.17.3) Method of measurement. By use of compass and speed log simulators* in addition to manual input of own ship heading, speed, set and drift, the display modes described in clause 3.17 shall be exercised. Repeat the tests of 4.3, 4.4, 4.6, 4.8 and 4.9 with the alternative stabilisation applied. * Simulator signals shall be in accordance with IEC 61162."	Agreed.
UK	4.17.3			See below	Delete all of clause 4.17.3 Insert "4.17.3 Results required The requirements of clause 3.17.1 to 3.17.8 shall be confirmed."	Agreed.
DE	4.17.4		Technical	The radar shall be capable of receiving and receiving and evaluating speed information in the fore and aft direction from a SDME. This capability should be tested.	Replace: "no test required" By: "check by inspection together with 4.22."	Agreed. See UK below.
UK	4.17.4			See below	Delete all of clause 4.17.4 Insert "4.17.4 (3.17.4) Test that only fore and aft speed through the water is used in sea"	Agreed. The proposed text has been modified to read "Test that fore and aft speed through the water is used."

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					stabilised modes.”	
UK	4.17.5		T	For all of the above changes to 4.1.7 Defines the test requirements more fully and rigorously.	Insert / add (before 3.17.6) “3.17.5”	Agreed.
JAPAN	4.18.2	Line 2	Editorial		Change “3.18.1” to “ 3.18”	Agreed.
UK	4.19.1		E	Clarity	Insert (after guidance) “to the requirements of 3.19”	Agreed.
UK	4.20		E	IMO resolution requirement	Delete “warnings” Insert “alarms”	Not agreed. Have added “alarms” after “warnings” in order to retain the IMO text.
DE	4.20.1		Technical	All sub-clauses of 3.20 should be tested.	Replace 3.20.1 by 3.20	Agreed.
UK	4.20.1		T	To provide more detail guidance to test laboratories.	Insert / add (at end) “Observe the ‘alarm’ display and note any audible alarms. One or more moving targets shall be on display during these tests and their motion confirmed after each test. As far as is possible check that any other failure modes do not produce picture freeze and that on the loss of radar picture update information the radar display area is cleared. This could be simulated by disconnecting the radar video signal from the radar display processor.	Agreed.
UK	4.20.2		E	Better English	Delete “up”	Agreed.
DE	4.21		Editorial		Replace 3.21.2 by 3.21	Agreed.
UK	4.21		T	To give test requirements clarity.	Delete para 1 Insert “4.21.1 Where inter-switching facilities are provided they shall be tested by	Agreed.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
					<p>configuring the EUT with additional transceivers and displays so that the functions provide a representative system of the inter-switch to be exercised.</p> <p>4.21.2 Results required</p> <p>The interswitching facilities shall comply with the requirements of 3.21.”</p>	
UK	4.22.1		T	Consequential on new 3.22.7.	Insert (after EPFS) “”, and if appropriate on AIS”	Agreed.
JAPAN	4.22.2		Editorial		Change 1.- 2.- 3. and 4. to .1 - .2 - .3 and .4	Edited to be a), b) etc.
UK	4.22.2	para 1	T	Consequential on new clause 3.22.7	Insert (after data) “, and if appropriate AIS symbology.”	Agreed.
UK	4.22.3		T	Clarity of test	Delete “Check by inspection” Insert “The IEC 61162 output shall be connected via an interface cable that gives the correct electrical loading to a computer capable of displaying the digital message. The message content shall be compared to the approved sentence formats appropriate to radar device.”	Agreed.
UK	4.23.2	para 3	T	To check the functionality of loss of reference.	Add (at end) “and check that with the loss of ‘geographic referencing’ that the appropriate alarm and indication results.”	Agreed.
UK	4.23.2	new para 5	T	To check the functionality of the mapping facilities.	Insert / add “Check by inputting a test shape using the manufacturers mapping facilities (as described in the manual) and subsequent measurements on all appropriate ranges that the requirements of 3.23 are met.	Agreed.

National Committee	Clause/ Subclause	Paragraph Figure/ Table	Type of comment (General/ Technical/Editorial)	COMMENTS	Proposed change	OBSERVATIONS OF THE SECRETARIAT on each comment submitted
UK	4.24.3		T	Clarity of test.	Insert / add (after by) "operation and"	Agreed.
UK	4.26.1	para 1	E	Better English	Delete para 1 Insert "With the EUT operational the functions and controls described in 3.26 shall be checked."	Agreed.
UK	4.26.2		E	Editorial	Delete "in 3.26.1 to 3.26.6" Insert "and criteria in 3.26"	Agreed.
UK	4.27.2		E	Missing	Insert / add "4.27.3 (3.27.2) Check by inspection that adequate means are provided."	Agreed.
UK	4.28.2	new para 2	T	For harmonisation.	Insert / add "From IEC 60936-2 HSC radar, all of 4.30 as new para 4.29"	Agreed.
DE	Annex B.5		Editorial	To be in compliance with abbreviation for OFFCENTRE = OFF CENT	Replace "CEN" by "CENT"	Agreed.
UK	B5	Page 38 last line	E	Editorial	Delete "ACCESS CODE" Insert "IDENTIFICATION NUMBER"	Agreed. Required to be inserted twice.
UK	C5	2.1 [6]	E	To resolve the apparent conflict between the note and the columns.	Insert / add (at end) "and is included here for reference purposes only."	Agreed.
UK	C5	2.2 2.1	T	Editorial	Insert " a second arrowhead ie: > >	Agreed.
UK	Annex E new		T	To give guidance on the requirements of the performance test/check of IEC 60945	Insert a new (informative Annex E) giving guidance see attached	Agreed. Attached as the following four pages.

ANNEX E
(informative)

Performance checks during environmental testing

Company / applicant

Equipment name

Equipment type / class

Testing laboratory

File reference

Test specification IEC 60945 : 1996 Clause

1. EQUIPMENT IDENTITY

The equipment listed below has been supplied for testing.

1.1 Antenna/turning unit(s)			
Type			
Frequency band			
Array length			
1.2 Transmitter/receiver			
Type			
Mast head or bulkhead			
Frequency band			
Output power			
RF connection Waveguide / coaxial			
1.3 Display unit			
Type			
Single or multi-unit			
Monochrome/colour			

Remarks/comments:

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Accepted for test

Signature Date

2. PERFORMANCE CHECKS FOR RADAR FUNCTIONS

Date of test

The following controls/functions should be exercised as appropriate during.
Normal operation should be confirmed by a tick in the pass box or measurement.

2.1 Functions	Pass	Fail	N/A *1
Power (on/off switch) time (clause 4.15)	On Sec. Stby Sec.		
Range selection			
Fixed range rings			
VRM (operation and data display)			
EBL (operation and data display)			
Cursor(operation and data display)			
Heading line			
Display; diameter (clause 4.5.1) Mode - Head up - Course up - North up	mm		
True motion and TM reset *2			
Gain			
Tuning			
Echo trails (wakes)			
Antenna turning - regular rotation Speed +/- 10% of nominal rotation			

Note *1. - A comment is required if a test is considered not applicable (N/A).

*2. - with IEC 61162-1 speed log input of 30 knot forward speed.

Remarks/comments:

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3. PERFORMANCE TESTS FOR PLOTTING FUNCTIONS

Date of test

The following performance tests 3.1 or 3.2, are to be conducted.

3.1 Functions ARPA/ATA	Pass	Fail	N/A^{*1}
Manual acquisition of targets			
Automatic acquisition of targets			
Target cancel			
Target vectors True / relative Direction and length of vector Vector movement tracking echo			
Target data (alphanumeric) Course Speed CPA TCPA			
Display of past positions (history)			

Note *1. - A comment is required if a test is considered not applicable (N/A).

Remarks/comments:

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3.2 Functions EPA	Pass	Fail	N/A^{*1}
Plot 2 points - Vector appears			
Plot cancel			
Vector:- True / relative Direction and length of vector Vector movement constant			
Plot data (alphanumeric) Course Speed CPA / TCPA			

Note *1. - A comment is required if a test is considered not applicable (N/A).

Remarks/comments:

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4. PERFORMANCE TESTS FOR INTERFACE FUNCTIONS

The following performance tests are to be conducted as appropriate.

4.1 Functions	OK	NOT OK	N/A
Compass data			
Position information (IEC 61162-1 serial)			
Speed information			
Single axis log (200 pulse/nautical mile)			
Dual axis log (IEC 61162-1 serial)			

A comment is required if a test is considered not applicable (N/A).

Remarks/comments:

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5. PERFORMANCE TESTS FOR INTERSWITCH FUNCTIONS

If Interswitch facilities are provided then the following performance tests are to be conducted as appropriate during.

4.2 Functions	OK	NOT OK	N/A
Display / transceiver selection			
Cross connection			
Mimic display / indication of selection			

A comment is required if a test is considered not applicable (N/A).

Remarks/comments:

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Tests on pages E2 to E4 complete

Test engineer name

Signature Date